State-of-the-art pharmaceutical technology is characterized by changes in the structure of production of soft medicinal forms for external use, the assortment of which is continuously modified and renewed based on the development and commercial implementation of new auxiliary materials — both natural and synthetic. It was pointed out [1, 2] that, despite the broad spectrum of auxiliary substances used in cosmetics, perfumery, and pharmacy, the main requirements on these components are practically the same. The auxiliary substances must provide for (i) the necessary mass of, for example, an ointment, (ii) the desired state and optimal rheological properties of this composition (which must ensure the claimed therapeutic effect at a minimum dose of the parent drug), (iii) the absence of toxic, irritating, and sensitizing action on the organism, (iv) the absence of undesired interactions between various auxiliary components and between these components and drugs, (v) the stability of properties under the action of external factors, and (vi) the appropriate appearance and odor of a given soft medicinal form [1, 3].

The quality of auxiliary substances must meet the requirements formulated in all normative documents (technical conditions, pharmacopoeial articles, state standards) in the course of production, storage, and use in various medicinal forms. In connection with the new requirements concerning the microbiological purity of nonsterile drugs, the auxiliary components used in their production must meet all such requirements (with allowance for the destination and application of the product) [1, 4].

The auxiliary substances intended for the production of ointments, gels, liniments, and creams can be classified with respect to their origin and destination.

**Classification of auxiliary substances with respect to their origin:**
(i) natural substances;
(ii) synthetic substances;
(iii) semisynthetic substances;
(iv) biotechnological products.

**Classification of auxiliary substances with respect to their destination:**
(i) base materials,
(ii) stabilizers;
(iii) solubilizers (bioaccessibility promoters)
(iv) prolongators;
(v) odor correctors (flavoring agents).

In the technology of ointments, gels, and creams, bases are the main structure-forming components. These substances account for the formation of composition, provide for
the required structure, density, and drug concentration, and ensure the optimum consistency (i.e., the ability of an ointment to be extracted from the container and applied onto the skin or mucous membranes without phase separation) [1, 5]. The chemical inertness of a base determines to a considerable extent the stability of the whole composition, since it provides for the absence of undesired interactions between auxiliary components and drugs and ensures the absence of changes under the action of external factors (air, light, moisture, temperature).

The compositions of liniments (liquid ointments) may include special auxiliary substances possessing structure-forming properties [e.g., aerosil, methylcellulose (MC) derivatives, low-cross-linked acrylic polymers, etc.] [3].

In the production of therapeutic and therapeutic-cosmetic preparations (ointments, gels, creams, and liniments), the most widely used bases belong to the following groups: collagen gels; polysaccharide gels (MC derivatives, abrubidian); clay mineral gels (bentonite clays); poly(ethylene glycol) (PEG) and poly(ethylene oxide) (PEO) gels; copolymers of acrylic acid (carbopol, arespol, methyl acrylates); efister (aqueous-glycerol complex of (2,3-dioxypropy)-ortho-titanate hydrochloride); efitility (a mixture of efister, euphylline, and Vaseline); emulsion waxes; distilled monoglycerides (based on animal and plant oils); cosmetic D-grade stearin; high-molecular-weight alcohols of synthetic fatty acids (C_{16} – C_{21} fractions); etc. [6 – 11].

The properties of a base material must correspond to the destination of a given soft medicinal form for external use. Bases of the surface ointments, which do not contain transcutaneous agents (auxiliary substances ensuring the permeation of active components deep into the skin), must not favor the absorption of ointments by the skin (examples are offered by polyethylene and silicone based compositions). In contrast, bases for resorptive ointments must provide for the permeation of active components through the corneal layer, hair follicles, and sudoriferous and sebaceous glands. Such ointments usually contain surfactants, prednisolone, hydrocortisone, heparin, or synaflan.

The bases for ointments, gels, creams, and liniments must be selected with allowance for the field and duration of use, the type of pharmacological activity of a drug component, the compatibility of auxiliary components and drugs, the production technology, the physicochemical nature of all components, etc.

Stabilizers are included into compositions in order to make possible a prolonged storage of soft medicinal forms for external use. The modern approach to the problem of stability of such preparations involves a complex of interrelated factors, the most important of which are the chemical stability of drugs, the stable consistency of the whole system, and the microbiological purity. Accordingly, there are stabilizers of physicochemical properties, stabilizers of chemical composition, and preservatives [1].

Substances providing for an increase in the stability of ointments, gels, creams, and liniments with respect to sedimentation and aggregation include densifying and emulsifying agents (surfactants). The most typical representatives of this group of auxiliary substances are cellulose derivatives, pectins, alginates, bentonite clays, abrubidian, aerosil, and some other. It is usual practice to use a combination of stabilizers. For example, synthomycin (chloramphenicol) liniment contains MC and emulsifier No. 1. Surfactants stabilize ointments, creams, and liniments by decreasing the surface tension at interphase boundaries, micelle formation, adsorption, and by increasing viscosity. The choice of surfactants must be performed with allowance for their hydrophilic – lipophilic balance (HLB). In order to provide for the optimum pharmacological effect at a maximum stability of the preparation, it possible to use several emulsifiers with different HLB characteristics. Emulsions of the oil-in-water type are usually stabilized using the following emulsifiers (HLB > 10): sodium lauryl sulfate, emulsifier No. 1, Lanett (sodium cytostearyl sulfate), Tweens, OS-20 (a mixture of polyoxyethylene glycol esters and higher fatty acids), cetylpyridinium chloride, higher fatty acid salts, oxoylated castor oil, polyoxyethylene glycol esters of stearic acid, etc. Emulsifiers for the water-in-oil type emulsions (HLB < 10) include higher fatty alcohols, cholesterol, wool wax alcohols, pentol [a mixture of pentaerythritol esters (predominantly diesters) and oleic acid], T-2 emulsifier, glyceryl monoleate (a product of esterification of oleic acid with glycerol, containing predominantly mono- and diesters), glyceryl monostearate, cetyl oleate (a product of esterification of oleic acid with higher fatty alcohols), etc. [12, 13].

Agents stabilizing the chemical composition of ointments, gels, creams, and liniments are introduced in order to prevent or retard redox processes, hydrolysis, etc. The most frequently used stabilizers of this kind are antioxidants, which can be subdivided into three groups with respect to their mechanism of action [1]. The first group contains substances capable of inhibiting the process of oxidation by reacting with free radicals of the primary oxidation products. This group includes tocopherol, butyloxyanisole, and butyloxytoluene. The second group represents antioxidants possessing lower redox potentials as compared to those of the oxidizing components. This group includes sodium sulfite and metabisulfite, propyl gallate, ascorbic acid, and ascorbyl palmitate. The third group consists of antioxidants capable of forming complexes with metal ions playing the role of catalysts. These antioxidants are also called complex-forming agents [ethylenediaminetetraacetic acid (EDTA), etc.]. The hydrolysis of drugs can be suppressed using acids, alkalis, or buffer systems.

The microbiological purity of nonsterile medicinal forms (including ointments, gels, creams, and liniments) during storage and use is achieved (besides the appropriate conditions of production and use) by adding substances possessing antimicrobial properties (preservatives). These agents prevent the growth and development of microorganisms, which can get into the preparation in some technological stages or in the course of prolonged use. Of course, the effective concentration of preservatives in a ready-to-use preparation must